

In writing of *Chlamydodera maculata* Mr. North describes these antics as follows:—"Standing on tip-toes, with lowered head and the pink frill on the nape erect, the male will run, sometimes sideways, through and around the bower, stopping perhaps to alter a decoration or to throw up his wing, or lie down on his side" (Nests & Eggs B. of Austr. vol. i. p. 46). In my journal I describe the playground of this species as follows:—"It was built near a clump of small 'sandal-wood' trees upon an open and exposed piece of ground so that it could easily be seen from a distance. The neat alley-way of sticks was well and firmly put together and was adorned at both ends by an assortment of bleached bones, mixed with a few shells and stones of the 'wild plum' fruit. There were also a few pebbles and pieces of glass among the decorations."

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XIX.—*On the Breeding of the White-necked Crane* (*Anthropoides leucauchen*) at *Gooilust, 'sGraveland*. By F. E. BLAAUW, C.M.Z.S., M.B.O.U.

A PAIR of White-necked Cranes, which I had kept in an enclosed garden in my park for five years, began to nest for the first time in May 1906, and at the present moment (April 1908) the birds are sitting on two eggs for the third time.

The garden in which they are kept has a small pond, which is partly surrounded by conifers and Japanese bamboos and is fully exposed to the sun. On a little elevation near the edge of the pond, amidst tall-growing weeds, the nest was placed, composed of a few dry stalks. The first egg was laid on the 12th of May and the second followed two days later. Incubation began as soon as the first egg was laid.

The enclosure being kept very quiet, the birds remained rather shy and thus gave me an opportunity of observing

them in all their wild little ways. For instance, if I passed at some distance from the nest without apparently noticing it, the sitting bird would lie quite flat, stretching head and neck before her on the ground in the way Kentish Plovers are apt to do. If I stopped at some distance from the nest and for a time turned my back to it, I invariably found, when I turned round, that the birds were gone and were very conspicuous a good way off.

In the pond near the nest a quantity of papyrus (*Cyperus pungens*) grew, and whilst incubation was going on one of the birds, I believe the male (but am not quite sure, as they are so very much alike that I only know them when seen together), was often busy breaking up the stalks of one of the biggest tufts of papyrus and making a platform of them. I wondered at the time what the object was, but we shall see later that he knew very well what he was about.

On the 14th of June the first egg was hatched, and the head of the chick was often visible peeping from under its parent's wing. As the bird remained on the nest notwithstanding the chick, I had great hopes that the second egg would be hatched, and, as luck would have it, this was the case, for two days later number two also broke its shell.

The weather was warm and sunny, and as soon as the second chick was strong enough, the parents began to lead both of them about, diligently feeding them with earthworms. If I came upon them by surprise the old bird would make a sharp noise and the chicks would then run away and hide amongst the tall-growing weeds. One day I surprised the family in a corner of the garden from which there was no exit without passing in full view of me. The male ran up to me, rushed past me and began to mimic a wounded bird, tumbling about in a desperate way and advancing all the while in a direction opposite to that where I surprised the family. I followed the bird, and apparently when he found that he had led me away far enough (the female having in the meantime stolen away with the chicks) he suddenly gave up the game, sprang

to his feet, bowed to me and danced, as if vastly amused by the success of his trick, and finally ran away.

Coming into the garden rather late one night I found out what the use of the papyrus platform was. On it sat the female, secure in the middle of the pond with the two chicks under her wings, and at some distance, standing on one leg in the water, was the male, keeping watch over the family.

As the chicks grew they would run farther away if anybody came near, and would then generally be followed by the female. The male, however, would follow *me* in my wanderings through the garden and would not let me out of sight until I had again left the enclosed space.

The chicks were clothed with rufous down, darker above and whiter below. At the age of three weeks they were about the size of a common fowl, but higher on the legs and with slighter bodies. At five weeks feathers began to appear on the shoulders. At six weeks the bodies were nearly half-grown, but the legs were comparatively much more developed. At this period the down of the tail, probably with growing feathers at the base, was very long and conspicuous.

On the 4th of September the chicks were more than three-quarters grown and fully feathered. The first feathers are grey with rufous edges. The grey is darkest and the rufous edges most conspicuous on the upper parts; on the under parts the grey is lighter and the brown not so well defined. The parts of the hind-neck which are *white* in the adults are *bright rufous* without any grey in the young birds. The legs are of a greyish flesh-colour and the bill of a yellowish flesh-colour. The head is entirely feathered. The primaries are black with white shafts as in the adults. The inner secondaries are slightly falcated and elongated, but to a lesser degree than in adult birds.

The parents would not take any bread or meat offered to them, but fed the young almost entirely on earthworms and insects, which they provided themselves. Each of the old birds had generally one chick standing near it and was busy

all day feeding it, constantly turning up the soil in search of earthworms. The chicks uttered a soft whistling sound while being fed.

As they grew older the young began to eat grain, and also later took bread and meat for themselves, whilst twice a week a liberal supply of living shrimps was much appreciated.

One of the young birds was much browner than the other, and appeared from its general aspect to be a female.

During the first days of September I noticed that the larger of the two young birds followed the parents less closely than it was wont to do and did not hide in the bushes as I approached, but kept more in the open. Altogether it began to look more independent and self-possessed. This, according to my experience, meant that the bird could fly and was aware of it. I therefore resolved to try to move the birds into a covered enclosure and to cut their wings. To effect this the family had first to be driven into a small open enclosure, which had an opening into one that was covered with wire netting. The experiment was tried on the 7th of September. The old birds and one of the young went into the first enclosure without any difficulty, but the second young one, which I had suspected of knowing its power of flight, refused to enter the open enclosure and instead took to flight, flying right away at a good height. I thought that I should lose the bird, but after a while, to my delight, I saw it come back, circling over the place where I stood, and finally alighting in the identical small open enclosure in which the rest of the family were. It was a beautiful sight, but my anxiety about losing the bird almost spoilt my enjoyment of it.

The birds henceforth went without any difficulty into the covered place where the wings were to be cut.

In the last half of September the bills of the young birds began to assume the greenish colour proper to the adult. The colour began at the tip of the bill and gradually advanced towards the head. In the last week of September I noticed that some of the blue-grey feathers of the adult

dress began to appear on the breast and along the sides of the neck, whilst at the back of the neck some pure white feathers became visible. I was rather surprised to observe this, as the birds, only three and a half months old, had in fact just finished growing their first feathers and were not even quite full-grown. The white colour increased with extraordinary rapidity, and also the general moult, so that on the 16th of October the birds could be described as follows:—

Bill greenish as in the adults, but flesh-coloured at the base; the head still entirely feathered and brown; the *hind-neck* completely white from the base of the head downwards; the white of the neck surrounded by blue-grey feathers as in the adults; fore part of neck and breast and under parts mottled with blue-grey feathers, which daily increased in number and also appeared on the upper parts; the legs assumed gradually the bluish-pink colour found in the adults.

On the 20th of November the head was still brown except the ear-coverts, which had become grey. The throat and sides of head, which are white in the adults, had assumed a pale blue colour, and the bare red skin of the head was becoming slightly visible. The body was also moulting fast.

On the 19th of December the occiput was becoming white and the pale blue-grey throat was turning white, as were the sides of the head.

By the 1st of February, 1907, the white throat and side-head markings had become more apparent, the face had become red and bare, and the black hairs were sprouting.

On the 20th of February the birds had nearly completed their changes, only the flight-feathers with some of their coverts and perhaps also the tail-feathers being then retained. There was still some brown in the white of the occiput, and the white and blue neck-markings, although quite distinct, were not so sharply defined as in the old birds. In the course of the summer the last remains of the immature dress disappeared.